What is claimed is: (for US)

1.   An image processing method for recovering reading faults from digitized image data of an input image read from an image recording medium, the faults being due to imperfections present on the image recording medium such as scratches, dust or stains, said method comprising:

a step of detecting defective pixels influenced by said imperfections;

a step of performing an interpolating process for said defective pixels to create corrected pixel values for said defective pixels;

a step of calculating standard deviations of pixel values forming the image data, and determining granularity of said input image based on said standard deviations; and

a step of adding a value obtained by multiplying said granularity by a random number to said corrected pixel values for each defective pixel.

2.   A method as defined in claim 1, further comprising:

a step of shifting a mask consisting of a reference number of pixels on the input image by a predetermined number of pixels at a time, and calculating standard deviations of pixel values forming image data of each pixel included in said mask in each shift position; and

a step of calculating an average of said standard deviations in said mask in each shift position;

wherein said average is determined to be the granularity of said input image.

3.   A method as defined in claim 2, wherein said mask is shifted in a way to avoid duplication of pixels in each shift position.

4.   A method as defined in claim 1, wherein said standard deviations are calculated by excluding pixel values of the defective pixels.

5.   A method as defined in claim 1, wherein said random number is generated in a range of –0.5 to +0.5.

6.   A method as defined in claim 1, wherein said image recording medium is a photographic film.

7.   A method as defined in claim 6, wherein said imperfections are scratches formed on an emulsion surface of said photographic film.

8.   A computer-readable medium having stored thereon computer-executable instructions which when executed perform an image processing method, the method being for recovering reading faults from digitized image data of an input image read from an image recording medium, the faults being due to imperfections present on the image recording medium such as scratches, dust or stains, the method comprising:

a step of detecting defective pixels influenced by said imperfections;

a step of performing an interpolating process for said defective pixels to create corrected pixel values for said defective pixels;

a step of calculating standard deviations of pixel values forming the image data, and determining granularity of said input image based on said standard deviations; and

a step of adding a value obtained by multiplying said granularity by a random number to said corrected pixel values for each defective pixel.

30

9. A computer-readable medium as defined in claim 8, wherein said method includes a step of shifting a mask consisting of a reference number of pixels on the input image by a predetermined number of pixels at a time, and calculating standard deviations of pixel values forming image data of each pixel included in said mask in each shift position, and a step of calculating an average of said standard deviations in said mask in each shift position,

wherein said average is determined to be the granularity of said input image.

10. An image processing apparatus for recovering reading faults produced in time of scanning photographic film due to imperfections present on the film such as scratches, dust or stains, said apparatus comprising:

a defective pixel detecting unit for detecting defective pixels influenced by said imperfections;

an interpolating unit for performing an interpolating process for said defective pixels to create corrected pixel values for said defective pixels;

a standard deviation calculating unit for calculating standard deviations of pixel values forming image data, and determining granularity of an input image based on said standard deviations; and

a graininess adding unit for adding a value obtained by multiplying said granularity by a random number to said corrected pixel values for each defective pixel.